DOCUMENT RESUME

ED 173 533 CE 019 603

AUTHOR Tindall, Lloyd W.; Gugerty, John J.

TITLE Least Restrictive Alternative for Handicapped Students. Information Series No. 143.

INSTITUTION Ohio State Univ., Columbus. National Center for Research in Vocational Education.

SPONS AGENCY Bureau of Occupational and Adult Education (DHEW/CE), Washington, D.C.
BUREAU NO 498AH80003
PUB DATE 79
CONTRACT 300-78-0032
NOTE 45p.; For related documents see CE 019 604-618

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Curriculum; *Delivery Systems; Educational Philosophy; Educational Planning; *Educational Programs; Educational Research; Failure Factors; *Handicapped Students; Instructional Materials; *Mainstreaming; Models; Program Development; Success Factors; Teacher Education; Teaching Methods; *Vocational Education

ABSTRACT

One of a series of sixteen knowledge transformation papers, this paper examines the concept of the least restrictive alternative for handicapped students as it applies to vocational education and provides representative models of service delivery systems. First, the origin of the least restrictive environment concept is traced, including the philosophy behind it, the role of the courts and legislation, and the influences of research, and of the search for racial equality. Next, vocational programs and materials are summarized that have attempted to provide least restrictive alternatives for the handicapped. Included are descriptions of the current research literature; textbooks and handbooks; professional development programs; workshops; the role of the paraprofessional; competency-based programs; models for delivery of services; techniques for teaching the trainable mentally retarded; work experience programs; two projects, one in Minnesota and one in Wisconsin; barriers to the successful completion of vocational programs by the handicapped; and the right of the handicapped to employment. Based on the author's experience, three areas are identified as basic to developing least restrictive vocational services: (1) preservice and inservice training; (2) development of a prescription foundation; and (3) teacher preparation for work with handicapped students. Recommendations are offered in the areas of planning, staff development, curriculum, and instructional materials. An extensive list of references is provided at the end. (ELG)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED173533

Information Series No. 143

LEAST RESTRICTIVE ALTERNATIVE

FOR HANDICAPPED STUDENTS

written by

Lloyd W. Tindall and John J. Gugerty
University of Wisconsin-Madison

National Center for Research in Vocational Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio
1979

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

CE 019 603

FUNDING INFORMATION

Project Title:	National Center for Research in Vocational Education, Dissemination and Utilization Function
Contract Number:	OEC-300-78-0032
Project Number:	498AH80003
Educational Act Under Which the Funds Were Administered:	Education Amendments of 1976, P.L. 94-482
Source of Contract:	Department of Health, Education, and Welfare United States Office of Education Bureau of Occupational and Adult Education Washington, DC
Project Officer:	Paul Manchak
Contractor:	The National Center for Research in Vocational Education The Ohio State University Columbus, Ohio 43210
Executive Director:	Robert E. Taylor
Disclaimer:	This publication was prepared pursuant to a contract with the Bureau of Occupational and Adult Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official U.S. Office of Education position or policy.
Discrimination Prohibited:	Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Title IX of the Education Amendments of 1972 states: "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance." Therefore, the National Center for Research in Vocational Education, like every program or activity receiving financial assistance from the U.S. Department of Health, Education, and Welfare, must operate in compliance with these laws.

FOREWORD

The Education for All Handicapped Children Act (P.L. 94-142) has as its underlying assumption the fact that all students can learn and that the state is responsible for the education of all children. The legislation specifies uniform standards for providing handicapped students with equal educational opportunities in the least restrictive educational alternative commensurate with their needs. This paper examines the concept of the least restrictive alternative as it applies to vocational education and provides representative models of service delivery for the least restrictive alternative within the vocational education system.

"Least Restrictive Alternative for Handicapped Students" is one of a series of 16 papers produced during the first year of the National Center's knowledge transformation program. The 16 papers are concentrated in the four theme areas emphasized under the National Center contract: special needs subpopulations, sex fairness, planning, and evaluation in vocational education. The review and synthesis of research in each topic area is intended to communicate knowledge and suggest applications. Papers should be of interest to all vocational educators, including administrators, researchers, federal agency personnel, and the National Center staff.

The profession is indebted to Dr. Lloyd W. Tindall and John J. Gugerty for their scholarship in preparing the paper. Recognition is also due Dr. David C. Gardner, Boston University, Dr. L. Allen Phelps, University of Illinois, and Dr. Lorella McKinney, the National Center for Research in Vocational Education, for their critical review of the manuscript. Dr. Carol P. Kowle, research specialist, supervised the publication of the series. Ms. Jo-Ann Cherry coordinated editing and production.

Robert E. Taylor
Executive Director
National Center for Research
in Vocational Education

CONTENTS

INTRODUCTION	1
ORIGIN	1
Philosophical Roots	1
The Role of the Courts	2
The Role of Legislation	3
The Influence of Research	8
The Influence of the Search for Racial Equality	9
FINDING THE LEAST RESTRICTIVE ALTERNATIVE IN VOCATIONAL EDUCATION	10
Toward a Least Restrictive Alternative	10
Textbooks at Last	12
Least Restrictive Environment	13
Vocational Strategies	13
Models for Delivery of Services	14
Professional Development Programs	16
Handbooks	16
Paraprofessionals	18
Competency-Based Programs	19
Other Techniques	19
Work Experience	20

Projects 20

Barriers 21

Employment 22

DEVELOPING LEAST RESTRICTIVE VOCATIONAL SERVICES FOR HANDICAPPED STUDENTS 22

Preservice and Inservice Training 23

Developing a Prescription Foundation 23

Preparing Teachers to Work With Handicapped Students 25

RECOMMENDATIONS 26

Planning 26

Staff Development 28

Curriculum 29

Instructional Materials 29

CONCLUSIONS 30

REFERENCES 32

INTRODUCTION

The least restrictive alternative approach to the vocational education of people with handicaps is in one sense the revival of a concept as old as vocational education itself: the provision of vocational training designed to meet the needs of the individual student. In another sense, the least restrictive alternative concept is a major departure from tradition, because it embraces a philosophy which states that we all are entitled to realistic opportunities to obtain skills needed to achieve dignified employment which leads to an increased sense of self-worth, economic independence, and social esteem. That philosophy also states that we are entitled to be educated with our fellow humans unless compelling factors mitigate against it. The least restrictive alternative concept requires the adaptation of methodology to educational strengths and weaknesses, careful planning, thorough organization, and willingness to insure that it becomes operational.

In this paper, the origin as well as the current status of this concept are reviewed. In addition, vocational programs which have attempted to provide least restrictive alternatives for handicapped students are summarized. Representative models of service delivery, including a model for conducting preservice and inservice training for staff, are also presented. Recommendations are made in order to translate the concept into appropriate ways to provide vocational education to people who are handicapped.

ORIGIN

For many years, the goal of the public school system was to provide the intellectual skills and cultural awareness necessary for adult functioning in American society. Vocational educators held that training for skills leading to employment or to further vocational education should be made available to all who could profit from it. However, in practice, most students were allowed only two alternatives: meet the standard requirements or fail and drop out. For many handicapped students even these alternatives were not available. For them the choice was either to accept the special programs established for "them" or receive no education. Physical barriers, prejudice, and screening procedures for many educational programs prevented most handicapped people from even enrolling in educational and training programs that were becoming more important in the competition for employment. They had no least restrictive alternative.

Philosophical Roots

In recent years, however, educational opportunities for handicapped people have multiplied. The philosophical roots of these opportunities are embedded

in the principle of normalization, and the principles of equal opportunity and due process expressed in the United Stated Constitution.

The normalization principle, originally developed in 1959 by the head of the Danish Mental Retardation Service, has been broadened and systematized by Nirje (1969) and Wolfensberger (1972). As it is currently formulated, the normalization principle is applicable to any type of human service work, service provider, and service user. It is most effective when applied to services needed and used by people whom the general society devalues. Wolfensberger (1976) states that there is no universal agreement on the definition of normalization, but offers two definitions which to him convey the same message: (1) "the implementation of normalization" means the use of culturally normative means to offer people life conditions at least as good as those of average citizens and to enhance or support their behavior, appearances, experiences, status, or reputation; or (2) normalization is the utilization of means which are as culturally normative as possible to establish, enable, or support culturally normative behaviors, appearances, experiences, and interpretations.

Since a person becomes "deviant" by being different from others in dimensions of identity viewed as significant and negatively valued by others (Wolfensberger, 1976), an attempt to initiate the normalization process can stress: (1) changing the perceptions and values of the perceiver, and (2) minimizing the differences that activate the perceiver's devaluation and labeling behavior. Administrators and practitioners who support and practice individualized planning and programming in vocational education are in the best position to implement a philosophy of normalization for persons with disabilities. Such individualization would insure that each disabled student would be placed in an educational setting that was the least restrictive possible to meet his or her vocational training needs.

The Role of the Courts

The principles of equal opportunity and due process expressed in the fifth and fourteenth amendments to the United States Constitution and affirmed by Brown v. Board of Education (1954) have also reinforced the philosophical foundation upon which efforts to improve the quality of educational services to handicapped students were built. For many years, the least restrictive alternative did not exist as an option in the design and implementation of educational programs for people with handicaps. These constitutional principles have become fully operational for handicapped individuals only at the insistence of concerned parent groups, advocacy agencies and professionals.

A significant step in this process occurred when the Pennsylvania Association for Retarded Children (PARC) sued the state of Pennsylvania because members felt that retarded persons were being served poorly by educational institutions in the state. In 1972 Pennsylvania, with several other states, had laws which exempted pupils judged to be unable to profit substantially from further education from compulsory school attendance. Settling the case in favor of

PARC, the court established the principle that handicapped people were entitled under the United States Constitution to equal educational opportunities. This ruling provided a basis for the argument that all people are educable in some way and established the principle that an opportunity for a due process hearing must be made available before students can be denied admission to a public school program or have their educational status changed. The concept of "least restrictive alternative" as an educational strategy was introduced in this decision. A second court decision, which followed shortly after the PARC settlement, was reached in the case of Mills v. Board of Education for the District of Columbia. The Mills suit was brought by representatives of 43 handicapped children who charged that the city denied them free public education in violation of their fourteenth amendment equal protection rights. This case provided the first legal precedent for the principle set forth in the PARC case; namely, that handicapped students were entitled to an equal educational opportunity. The court also held that, in situations where a school system faced a funding shortage, retrenchment had to be made evenly across all programs, not just those which served handicapped students. The PARC and Mills cases and other, like LeBanks v. Spears (Louisiana), were also important in developing the concept that handicapped students and their parents were entitled to an opportunity to dispute placement decisions made by school officials. With minimum procedural protection, a fair determination of appropriate placement in the least restrictive environment necessary to educate students with special needs has been assured (Siedor, 1976).

The Role of Legislation

In 1975, the federal Education for All Handicapped Children Act (P.L. 94-142) established uniform standards for providing handicapped students 3-21 years of age with equal educational opportunities in the "least restrictive educational alternative" commensurate with their needs. However, the government did not issue the regulations which implemented this legislation until August 23, 1977. The underlying assumption of this complex and far reaching law is that all students can learn, and the state is responsible for the education of all children. Among the major provisions of the law are the following:

1. A free public education will be made available to all handicapped children between the ages of 3 and 18 by September, 1978, and all those between 3 and 21 by September of 1980. Coverage of children in the 3-5 and 18-21 ranges will not be required in states whose school attendance laws do not include these age groups.

2. For each handicapped student there will be an "individualized educational program" - a written statement jointly developed by a qualified school official, by the student's teacher and parents or guardian, and, if possible, by the student. This written statement will include an analysis

of the child's present achievement level, a listing of both short-range and annual goals, an identification of specific services that will be provided toward meeting those goals an indication of the extent to which the child will be able to participate in regular school programs, a notation of when these services will be provided and how long they will last, and a schedule for checking on the progress being achieved under the plan and for making any necessary revisions. These individualized educational programs must be reviewed at least annually.

3. Handicapped and nonhandicapped students will be educated together to the maximum extent appropriate, and the former will be placed in special classes or separate schools "only when the nature or severity of the handicap is such that education in regular classes, even if it includes supplementary aids and services, cannot be achieved satisfactorily."

4. Tests and other evaluation material used in placing handicapped students will be prepared and administered in such a way as not to be racially or culturally discriminatory, and they will be presented in the student's native language.

5. There will be an extensive and continuing effort to locate and identify youngsters who have handicaps, to evaluate their educational needs, and to determine whether those needs are being met.

6. Priority will be given first to those handicapped children who are not receiving an education and second to the most severely handicapped within each disability area who are receiving an inadequate education.

7. In school placement procedures and other decisions concerning a handicapped child's schooling, there will be prior consultation with the child's parents or guardian.

8. The states and localities will undertake comprehensive personnel development programs, including inservice training for regular as well as special education teachers and support personnel, and procedures will be launched for acquiring and disseminating information about promising educational practices and materials coming out of research and development efforts. ("Education for All Handicapped Children Act" 1977, p. 42497)

Of particular interest are the definitions of special education and vocational education in the P.L. 94-142 regulations: "Special education" means "specially designed instruction," at no cost to the parent, to meet the unique needs of a handicapped child, including classroom instruction. In the context of P.L. 94-142, "special education" also includes "vocational education" if it

consists of specially designed instruction, at no cost to the parents, to meet the unique needs of a handicapped child. "Vocational education" means organized educational programs which are directly related to the preparation of individuals for paid or unpaid employment, or for additional preparation for a career requiring other than a baccalaureate or advanced degree. This definition helps relate P. L. 94-142 to the Vocational Education Act of 1963 (P.L. 88-120) as amended by the Education Amendments of 1976 (P.L. 94-482). Under that act "vocational education" includes industrial arts and consumer and homemaking education programs. The definition of "special education" is particularly important under these regulations, since students are not handicapped unless they need special education. The definition of "related services" also depends on this definition since a "related service" must be necessary for a student to benefit from special education. Therefore, if students do not need special education, there can be no "related services" and the students, because they are not "handicapped," are not covered under the act.

Neither the law itself nor the regulations for implementation provide an operational definition of "least restrictive alternative." These documents do provide a description of elements which must be present and processes which must occur if a state education agency is to be in compliance with the law.

According to the regulations for P.L. 94-142:

> Each (local) public agency shall insure: (1) that to the maximum extent appropriate handicapped children, including children in public or private institutions or other care facilities, are educated with children who are not handicapped, and (2) that special classes, separate schooling or other removal of handicapped children from the regular educational environment occurs only when the nature or severity of the handicap is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily. ("Education for All Handicapped Children Act," 1977, p. 42497)

Public Law 94-142 represents a major attempt to change the values of educators. The regulations for implementation of P.L. 94-142 support educational values which emphasize the adjustment of the educational environment to suit the learning needs of individual students. These needs are determined by steps which provide the student with "equal opportunity" for educational success. Through an assessment and planning procedure students can now participate in the decision-making sequence and the formulation of an educational plan. This attempted change in the underlying values of many educators has implications in the areas of policy formulation, curriculum planning, teacher training, resource allocation, and program accountability.

The commitment of this legislation to carrying out this major change in professional values is further evidenced in the P.L. 94-142 regulations which mandate that each local education agency must make available a continuum

of alternative placements and supplementary services in conjunction with regular class placements for their handicapped students. In other words, each education agency must make sure that students have "least restrictive educational alternatives" available to them.

Other legislation which has had implications for vocational education is Section 504 of the Rehabilitation Act of 1973, as amended in P.L. 93-112 and P.L. 93-516. Section 504 states that:

> No otherwise qualified handicapped individual (as defined by this Act) shall solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance. (Title V)

This is essentially the civil rights act for handicapped persons. Its implications for education, employment, and provision of human services are far-reaching. The federal government issued regulations implementing this section of the law in 1977, and then only in response to pressure from organizations representing the handicapped individuals. These regulations include the following requirements:

1. That employers, as recipients of federal financial assistance must make reasonable accommodation to the handicaps of applicants and employees unless the accommodation would cause the employer undue hardship.

2. That providers of services, as recipients, are required, (a) to make programs operated in existing facilities accessible to handicapped persons, (b) to insure that new facilities are to be constructed so as to be readily accessible to handicapped persons, and (c) to operate their programs in a non-discriminatory manner.

3. That all types of physical and mental impairments are covered.

4. That because its provisions are closely coordinated with those of the Education for All Handicapped Children Act (P.L. 94-142), it also requires that recipients operating public education programs provide a free, appropriate education to each qualified handicapped student in the most normal (integrated) setting possible. ("Qualified" may refer to age limits, such as 3-21, or other requirements which have been demonstrated to be essential to performance. For example, a photographer or truck driver trainee must have good vision in order to perform the job at all.)

5. That testing and evaluation procedures required by the regulations of P.L. 94-142 are carried out, and that schools provide adequate opportunity for parental review and challenge.

6. That tests and other evaulation materials

   a) are validated for the specific purpose for which they are used and are administered by trained personnel in comformance with the instructions provided by their producer
   b) include those tailored to assess specific areas of educational need and not merely those which are designed to provide a single general intelligence quotient
   c) are selected and administered so as best to insure that, when a test is administered to a student with impaired sensory, manual, or speaking skills, the test results accurately reflect the student's aptitude or achievement level or whatever other factor the test purports to measure, rather than reflecting the student's impaired sensory, manual, or speaking skills (except where those skills are the factors that the test purports to measure).

7. That postsecondary education must not discriminate against handicapped persons in recruitment, admission, and treatment after admission. Colleges and universities are required to make reasonable adjustments to permit handicapped persons to fulfill academic requirements, and to insure that they are not effectively excluded from programs because of the absence of auxiliary aids. (Federal Register, May 4, 1977, p. 22682)

The term "least restrictive alternative" is not used in the regulations, but they do spell out a description of services to be provided. Specifically,

> A recipient (of federal funds) to which this subpart applies shall educate, or shall provide for the education of each qualified handicapped person in its jurisdiction with persons who are not handicapped to the maximum extent appropriate to the needs of the handicapped person. A recipient shall place a handicapped person in the regular educational environment operated by the recipient unless it is demonstrated by the recipient that the education of the person in the regular environment with the use of supplementary aids and services cannot be achieved satisfactorily. (Federal Register, May 4, 1977, p. 22682)

This requires documentation of the evidence and reasoning behind alterations in educational placement decisions. Section 504 sets no age limits, and specifically mentions postsecondary vocational education as being covered by this law (Subpart E, Federal Register, May 4, 1977, p. 22683).

Legislation which directly relates to "least restrictive alternative" as it applies to both secondary and postsecondary vocational education programs is the Education Amendments of 1976 (P.L. 94-482). Title II of this act revised the Vocational Education Act of 1963. Title II mandates improved planning and evaluation of programs, coordination of educational delivery systems in vocational education planning, and assurances of access to vocational education.

Planning requirements mandate that each state must develop five year plans and yearly operational plans. In developing these plans each state agency must insure that 10 percent of federal money received is spent on programs for handicapped students. Technical amendments to Title II were contained in P.L. 95-40 which passed June 3, 1977.

Selected key points which relate to the vocational education of handicapped students are as follows:

1. P.L. 95-40 revised the definition of "handicapped" in the Vocational Education Act to conform to the definition of "handicapped" in the Education of All Handicapped Children Act, P.L. 94-142. The revised definition includes "specific learning disabilities" as a handicapping condition.

2. The regulations require federal and matching state and local funds to be used to pay only the "excess costs" of the programs for the handicapped (costs of special education and related services above the costs of educational services to nonhandicapped students).

3. The 5-year state plan shall describe the planning procedures for each handicapped student's program, and the manner in which it will be coordinated with, and included as a part of, the student's individualized education program as required by the Education of All Handicapped Children Act.

4. The state shall use the 10 percent set-asides for handicapped persons to the maximum extent possible to assist handicapped persons to participate in regular vocational education programs.

This law and its accompanying regulations also do not provide an operational definition of "least restrictive alternative."

The Influence of Research

Two additional sources of developments in the education of the handicapped must be noted: the role of research and the role of efforts to overcome racial discrimination.

Research provided an impetus based on conclusions drawn from empirical investigations. Kirk (1964), for example, examined studies comparing special and regular classes in educating mildly retarded children, and concluded that these students achieved more academically in regular classes but seemed to

have better social adjustment when attending special classes. Dunn (1968) concluded that the special class was no more effective than the regular class in educating handicapped students. He also noted that removal of a student from regular classes and placement in a special education setting probably contributed significantly to feelings of inferiority and problems in being accepted by nonretarded peers. Other, such as Clark (1975); Kaufman et al. (1975); Birch (1975); Keogh (1976); and Keogh and Levitt (1976), point out that "mainstreaming" has not been defined in a way that is generally acceptable to professionals in the field, and is a very complex process that entails temporal, spatial, instructional, and emotional aspects. These authors also indicate that the effectiveness of mainstreaming is a function of specific administrative, instructional, student, and resource variables. In summary Keogh (1976) stated the following:

> Although mainstreaming is clearly mandated, we have few data and limited information that provide systematic and clear direction as to effective ways to implement it. We have little evidence that delineates program effects....The legal, moral, and ethical imperatives in mainstreaming are obvious. There is, however, considerable obscuring when it comes to the operation, implementation and evaluation of the mainstreaming effort. (p.25)

Gugerty (1978) called attention to the complexity inherent in developing and implementing meaningful research on the effectiveness of vocational education for handicapped people in a mainstream vocational setting. He also pointed out that research in this area will become difficult if investigators delay until vocational education programs establish responses to the legal, moral, and ethical imperatives of service delivery to handicapped students.

The Influence of the Search for Racial Equality

The final source of influence on the growth of the least restrictive alternative approach came from advocates of racial equality. Ross et al. (1971), noted that a major problem had developed by the inappropriate classification of minority children as educable mentally retarded because of invalid or incompetent administration of IQ tests, lack of parental involvement in screening and placement decisions, the stigmatizing effects of labeling, and the inadequacy of special education programs. According to Reynolds (1976), the President's Committee on Mental Retardation reported in 1968 that children from impoverished and minority-group homes were 15 times more likely to be diagnosed as mentally retarded than were children from higher income families. According to Reynolds, "Administrators of school systems in the larger cities have been given a virtual mandate to reverse the expansion of (segregated) special-education programs and to eliminate the testing, categorizing and labeling practices associated with placement in those programs" (1976, p. 45). Public Law 94-142 and regulations implementing Section 504 of the Rehabilitation Act of 1973 spelled out the requirements for using assessment instruments. The assessment must not discriminate unfairly and must assess validly what it purports to measure. The American Association on Mental Deficiency, in the 1973 edition of its Manual on Terminology and Classification in Mental Retardation (Grossman, 1973), also redefined mental retardation.

Thus, in response to legislative and judicial mandates, the educational establishment has undertaken a massive restructuring of its value system and its educational processes in order to provide handicapped people with opportunities to be educated in least restrictive environments.

FINDING THE LEAST RESTRICTIVE ALTERNATIVE IN VOCATIONAL EDUCATION

Toward a Least Restrictive Alternative

A comprehensive review of vocational literature reveals that the term "the least restrictive alternative" is seldom used by vocational educators. Vocational educators, however, have made research and curriculum developments which provide a basis for developing a least restrictive alternative for handicapped students. In 1977 Hull reviewed vocational education for the handicapped and did not refer to the term "least restrictive alternative." Hull did discuss recent legislation relating to the vocational education for handicapped students; alternatives for developing vocational programs; and educational strategies, needs, and curriculum developments. He concluded that the emphasis of future vocational programs must be toward equal access and maximum accommodation.

The least restrictive alternative according to Klein (1978) is based on the principle of normalization: "Normalized experiences are those which, for handicapped children most closely resemble those of their nonhandicapped peers" (p. 102). A high degree of restrictiveness implies that students are segregated and a low degree of restrictiveness implies an absence of segregative restrictions. Least restrictive setting would insure that there is physical, social, and instructional interaction among all students. Therefore, the most interactive setting would be the least restrictive and the least interactive would be the most restrictive. Klein specified that the necessary components of an interactive setting should include:

1. Social integration
2. Status characteristics
3. Physical integration
4. Instructional interactions
5. The role of the teacher
6. Ecological aspects of the classroom

Burgdorf (1975) enumerates terms developed for describing the legal doctrine of the least restrictive alternative, including normalization, integration, the cascade system, continuum of educational services, and mainstreaming. Of these terms, "mainstreaming" has emerged as the most widely used and perhaps the least understood. Mainstreaming, defined in terms of the least restrictive alternative, is the process by which educators are delivering services to handicapped students. The process involves educators of the various disciplines, administrators, parents, employers, and human service agency personnel.

There are numerous definitions and examples of "mainstreaming" in the current literature. Clark (1975) provided the following definition: "Mainstreaming--defined as an educational programming option for handicapped youth provides

support to the handicapped student and his(her) teacher(s) while he(she) pursues all or a majority of his(her) education within a regular school program with nonhandicapped students--is a challenging and viable option of educational service delivery for some handicapped children and youth" (p.1). Clark sees mainstreaming as a challenge to shift the emphasis of providing direct support services to handicapped students to one of providing indirect support services to handicapped students. He cautions the mainstreaming of educable retarded adolescents into programs which have gaps in curriculum development, instructional approaches, social training, prevocational assessment, guidance and counseling, work adjustment, and placement. Clark contends that vocational educators need support services for the handicapped and that few special educators are trained to give the needed technical assistance to vocational teachers that they have given to academic teachers. Support personnel for vocational education teachers is therefore essential for mainstreaming handicapped students. Chaffin (1974) believed that the provision of supportive services by special education teachers was a critical need when mainstreaming handicapped students.

In a 1978 study of nearly 1000 vocational teachers in North Carolina, Hughes found several barriers to mainstreaming handicapped students. These barriers centered around:

1. Need for teacher inservice on developing occupational education programs
2. Reduction of class size
3. Lack of support personnel
4. Lack of variety of options in small schools
5. Lack of funds for equipment and materials

Many vocational educators are developing program components for mainstreaming students. Administrators of occupational education programs who believed in the concept of mainstreaming were found by Tarrier (1978) to have better programs. The belief that these persons can achieve and grow resulted in a better conceptualized, smoother running operation. Tarrier found that a three-tier approach model for mainstreaming was the most successful. The three tiers were: (1) prevocational classes followed by (2) multi-occupational classes leading to (3) regular vocational classes. Much attention was devoted to the working relationship between occupational education and special education faculties. The prevocational training class appeared to be an important first step away from the highly supportive world of special education into the more independent world of work.

Learning centers were assessed by Schultz, Kohlmann, and Davisson (1978). Handicapped students were mainstreamed into three types of learning centers to see if the centers were effective in meeting the individual needs of students in home economics education. A variety of activities were provided in each learning center, that is, tapes, visuals, reading materials, hands-on objects. The authors found that cognitive growth appeared in both the handicapped and nonhandicapped students. Teacher attitudes toward the mainstreaming classes were positive and teachers were favorable toward the socialization which occurred as students worked toward a common goal. The acceptance of learning centers

as a tool in mainstreaming handicapped students is also emphasized in the publication by the Texas State Learning Resource Center (1977). Phelps (1977) has also developed a four phase model system of evaluating activities which are important to mainstreaming special needs learners.

Vocational educators have been active in developing and evaluating mainstreaming of vocational education for the handicapped in California's secondary schools in order to develop guidelines, identify characteristics, and develop a manual on mainstreaming for California teachers.

Johnson and Reilly (1976) also conducted a study of the mainstreaming of vocational education for handicapped students in California. Specific recommendations were to place emphasis on:

1. Promoting community acceptance of handicapped students
2. Establishing a K-12 career education program
3. Establishing a continuing education and information program for the community
4. Strengthening the financial support
5. Scheduling time for the vocational education work supervisor to assist special education students
6. Developing additional tutoring services

Additional recommendations were made concerning inservice education, funding, and allocation priorities.

In another California study Weisgerber (1977), Smith (1977), Dillman and Maloney (1977), and Maloney and Weisgerber (1977) developed a series of modules on "mainstreaming the handicapped in vocational education" for general understanding and planning. Disability areas covered by these modules include the orthopedically handicapped, the speech impaired, the visually handicapped, and the mentally retarded.

Suggestions were made by Kent (1977) for mainstreaming industrial education students in the shop class. Along the same lines Feichtner and O'Brien (1976) made recommendations and developed a model for mainstreaming special needs students into regular classrooms. In 1976 Manzitti and others conducted an evaluation of mainstreaming in vocational programs in Michigan. They collected information on programs available, supportive service systems, types and number of handicapped students, and problems encountered in mainstreaming. Although special education staff and parents were supportive of mainstreaming, Manzitti et al. found that regular teachers and parents of normal students tended to be the least supportive.

Textbooks at Last

After several years of research and special projects, textbooks on mainstreaming for vocational educators are finally being produced. One of the first, Mainstreaming Guidebook for Vocational Educators, by Dahl, Appleby, and Lipe (1978), covers attitudes, elimination of barriers, assessment, program modification, and placement.

Another textbook by Phelps and Lutz (1977) on Career Exploration and Preparation for the Special Needs Learners should be helpful to vocational educators in planning, delivering, and individualizing vocational education for handicapped learners. An earlier book by Brolin (1976), Vocational Preparation of Retarded Citizens, provides information on techniques for vocational preparation and program evaluation.

Now that the terminology and concepts of mainstreaming are familiar, another concept similar to the least restrictive alternative emerges; namely, the "least restrictive environment."

Least Restrictive Environment

Even though the term mainstreaming has been used widely by educators for the past few years, it has different meanings. The authors of an awareness paper produced by the Council for Exceptional Children for the White House Conference on Handicapped Individuals (1977) suggested that the term mainstreaming be replaced by the concept of least restrictive environment when talking about delivery systems for educating handicapped students. The intent was that handicapped students, to the greatest appropriate extent, be educated with nonhandicapped students. Delivery systems based on the least restrictive environment concept offer educational placement on a continuum of services ranging from the least restrictive to the most restrictive environment. Individualization of educational plans is the key to educational placement.

Vocational Strategies

Urban and Tsuji (1974) found that there were many approaches being made to educating handicapped students and concluded that a combination of ways depending on teacher understanding, resources of personnel, and other forms of assistance were the most useful.

Progress in material development has occurred over the past few years. Curriculum materials for a Spanish-English guide on job and social skills for special needs students were developed by Blanc (1976). Blanc also prepared manuals on vocational strategies for special needs students in middle schools, strategies for paraprofessionals, a manual on driver education, and vocational skills manuals in five vocational areas. Those five areas are automotive mechanics, electronic assembly, mechanical assembly, printing, and welding. Specific job-related activities are emphasized. Parker (1975) also developed a manual on improving occupational programs for the handicapped. With this manual, teachers could design a program, prepare for specific skill training, provide related academic instruction, conduct job placement and other related vocational services for handicapped students.

Materials and programs have been developed for specific handicapping conditions. Instructional materials in five areas of home economics were developed by Horn and Barsness (1975) for educable mentally retarded students. Video tapes on

teaching deaf students basic vocational skills were developed by Shuey (1976). Automobile maintenance, reading, and language activities were developed by Kessman (1976) mainly to help students follow directions. Kelley (1977) developed a postsecondary program of supportive services for the physically and sensorially limited adults.

Vocational educators have also modified vocational courses for handicapped students. A few examples of these materials are the following:

1. Learning to type with one hand by Martin (1974)
2. Bicycle repair course for deaf students by Humphreys (1975)
3. Basic business course for students with special needs by Grubb (1976)
4. Beauty culture course for handicapped students by Grubb (1976)

Material is available for vocational teachers to develop programs for specific vocational areas for specific handicapped students. Tindall, Lambert and Gugerty (1978) have developed a bibliography containing over 3,000 items. A bibliography of resources on mainstreaming exceptional students in vocational education programs has been developed by Maloney (1978).

The Northwestern Region Curriculum Management Center at Olympia, Washington publishes The Curriculum Catalogue containing materials developed by vocational teachers in the six state consortium. Wentling and others (1978) at the Minnesota Research and Development Center published a Resource Directory for Teacher Education in Vocational Special Needs.

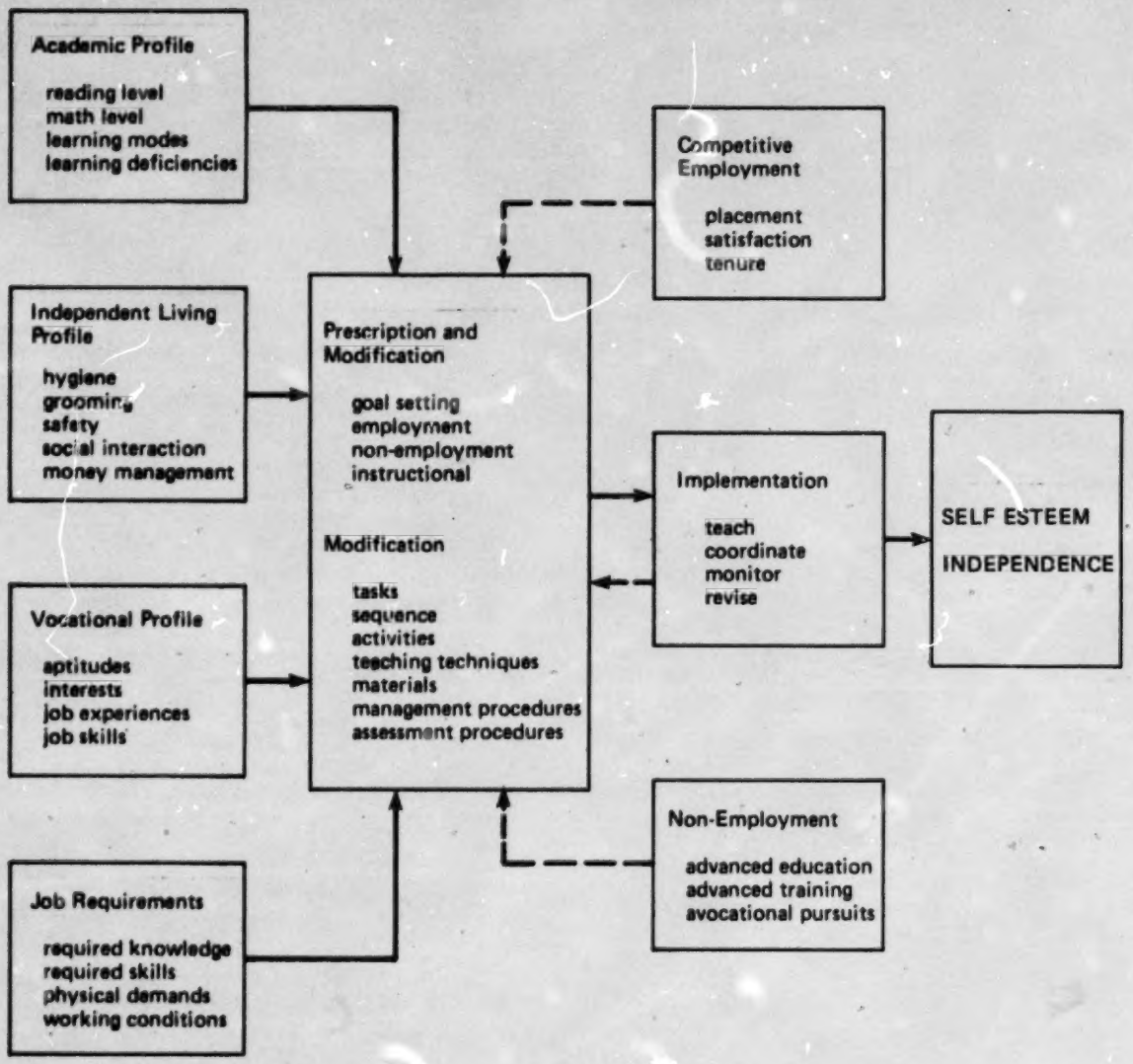
Models for Delivery of Services

Several models for the delivery of vocational services to handicapped persons have been developed. A comprehensive occupational education system was designed by the New York City Board of Education (1977) to provide a systems approach to planning. Education of handicapped and bilingual students is one of the 12 major divisions in the system.

A model designed by Rocco (1977) describes a diagnostic team which gathered information about student backgrounds and identified student needs. The team then summarized the findings and developed objectives for the student and prescriptions for the teacher and student. A modification of programs and facilities followed. A follow-up guides the student through the completed program to an employment situation. The model was primarily designed for secondary vocational teachers.

The "Modification Process Model for the Vocational Education of Handicapped Students" (p. 15) at the postsecondary level was developed by Tindall and Gugerty (1978). Although individualized education programs are not required by law at the postsecondary level, this model encouraged teachers to acquire necessary information on the academic, independent living, and vocational profiles of students as well as information on the requirements of employers in the field of the student's interest. Using this information, a prescription for the student could be made and modifications identified for existing vocational education programs. The vocational teacher and other support staff carry out the necessary program modifications.

MODIFICATION PROCESS MODEL
FOR THE
VOCATIONAL EDUCATION OF HANDICAPPED STUDENTS



Wisconsin Vocational Studies Center
University of Wisconsin-Madison

Meers (1977) at the University of Nebraska developed and implemented a transportable preservice and inservice delivery model to prepare vocational teachers to work with disadvantaged, handicapped, and minority students. A two-day workshop which can be used throughout the nation on inservice delivery, and a training component for training preservice and inservice vocational teachers to work with special needs students was the result of the project.

Professional Development Programs

Although information about how and what to teach handicapped students is available, there is a question of how much information reaches the teachers. The preparation of personnel presents a problem for universities and state education agencies. However, progress toward answering such questions as (1) how to reach teachers already in the field, (2) what kind of inservice is appropriate and how extensive an inservice program is needed, and (3) what should be the content of preservice courses has been and is being made.

A professional development program for vocational educators of mentally retarded students was developed by Hull and Halloran (1974). The program focused on a preservice and inservice training program to prepare teachers in vocational and practical arts education for educable mentally retarded students. Hull et al. (1976) also developed a set of procedures for teaching vocational concepts to special needs students. An instructional paradigm and instructional materials for teaching vocational and prevocational curriculum-based concepts was developed.

Professional competencies necessary for teachers of disadvantaged and handicapped youth were identified by Albright, Nichols, and Pinchak (1975) in a study of Ohio's vocational teachers. This study identified 112 competencies in the areas of program management, curriculum, and classroom management in future preservice and inservice programs and in the evaluation of university education programs.

Handbooks

A teacher's handbook was developed by Altfest (1975) to help identify and provide for the needs of disadvantaged and handicapped students. Another effort by Colorado State University resulted in an inservice course on "Teaching Students With Special Needs." Altfest and Hartley (1975) developed an administrator's handbook for the vocational education of students with special needs. This handbook was designed to help administrators develop district priorities; provide for staff development; facilities and equipment; program modification and coordination of community resources; as well as to understand prescriptive teaching; and to develop guidelines for evaluating vocational programs.

Faulkner (1975) also developed a handbook on implementing vocational special needs programs. This was primarily a handbook of policies and procedures, although the functions and responsibilities of different state agencies, coordinators, and supervisors were discussed.

Workshops and Programs

Sheppard and Pais (1977) held a workshop on the development of educational personnel to meet the employmont and job placement needs of handicapped persons. Major addresses were given on the barriers to employment, interagency planning, vocational training, and assessment of the handicapped.

Coombe (1977) and others developed a project which offered instruction in the area of prevocational and psychological programming for personnel working with the trainable mentally retarded. The structuring of curriculum to include prevocational and independence training through the use of task analysis and criterion-referenced measurement-based instruction was developed.

An extensive program on expanding options for handicapped persons receiving vocational education was developed at West Virginia Institute of Technology (1976). Emphasis was placed on four areas: (1) operational world, (2) student world, (3) training world, and (4) work world. Phelps and others (1976) developed a workshop for ten university state department teams. The workshop was designed to meet the unique needs of program development or expansion in the home state of each team. As a result of this workshop, Albright and Clark (1976) developed a monograph entitled Preparing Vocational and Special Education Personnel to Work With Special Needs Students. The monograph contained:

1. Guidelines and strategies for coordination of special needs teacher education
2. Personnel preparation
3. Examples of 18 university-based personnel preparation programs
4. Cooperative planning activities at teacher education and local education levels
5. Instructional resources
6. A federal assistance guide

Another product of this workshop by Braun, Albright, and Evans (1977) analyzed the program, including the presentations, group activities, evaluations, and postworkshop follow-up. Fifteen university consortium teams were to develop short range plans and activities for developing and improving education and employment opportunities for handicapped persons through improved teacher education programs. The team approach to preparing vocational special needs personnel was quite successful. Each participating team was provided with a mini-grant from the University of Illinois to conduct a small segment of research in its own state.

Sankovsky (1977) conducted an analysis of a statewide survey of vocational educators in Alabama who work with disadvantaged and handicapped students to identify their training needs. A series of nine cluster training areas were identified as areas of preservice and inservice training. The areas are:

1. The art and science of teaching special needs
2. Development and use of special materials and curricula
3. Developing interpersonal skills
4. Teaching reading skills

5. Information on special resource material
6. Training in motivational technology
7. Using experienced teachers as trainers
8. Development and use of individualized instructional materials
9. Teaching math skills

As a follow-up, recommendations for preservice and inservice training were made to state universities and education agencies.

Paraprofessionals

The role of the paraprofessional in vocational education programs for the handicapped student has been researched by Dean (1978). The relationship of paraprofessionals to vocational education of handicapped students could be as follows:

1. Mainstreaming of handicapped students into regular classroom and vocational shops or laboratories will be a prevailing and expanding trend in public schools.

2. The regular classroom teacher will thus be confronted with new instructional problems and will need to acquire special competencies.

3. The regular classroom teacher will need additional help to cope with the challenges posed by mainstreaming.

4. Because of budget limitations, most school systems will be unable to employ special education specialists to help the classroom teacher.

5. Help can be provided at a reasonable expense by employing part- or full-time teacher aides.

6. The regular classroom teacher and the teacher aide will require inservice training to acquire needed competencies.

7. Limitations of school funds preclude inservice training programs such as workshops or institutes which require the teacher and the teacher aide to be absent from normal duties and which necessitate hiring substitute teaching personnel.

Dean then proposed the team learning concept. The teacher and teacher aide would function as a team, be trained as a team, and work as a team in the classroom. The need for a paraprofessional would be satisfied when 50 percent of a class of 16 students were disadvantaged or handicapped. The qualifications and selection of paraprofessionals in vocational education are also discussed.

Paraprofessionals can be used in many program areas to enhance the education of students with various disabilities. The training and managing of paraprofessionals as tutors and notetakers for mainstreamed deaf students were addressed by Osguthorpe, Whitehead, and Bishop (1978). The notetaking and tutoring

techniques used by the National Technical Institute for the Deaf (NTID) in training paraprofessionals as well as the NTID management system for paraprofessionals were included.

Competency-Based Programs

The recent trend of competency-based education in vocational education is also apparent in the development of vocational programs for handicapped students. Recommendations on competency-based education for the inservice training for coordinators of special needs in vocational education were made by Krantz (1977). The special needs coordinators are members of a local education agency who are responsible for the design and direction of vocational education programs for handicapped and disadvantaged students. Krantz developed a list of 44 competencies which were required by special needs coordinators.

Chisman and Novak (1977) developed a competency-based administration module for planning vocational education programs for the disadvantaged and handicapped. This is one of seven instructional materials designed to help vocational administrators. Learning experiences are sequenced so that administrators are guided through implementation plans.

Competencies needed and problems of special needs teachers in Virginia were identified by Sheppard (1975). Teachers indicated that university courses and work experience ranked high in preparing them to teach special needs courses. Problems included: (1) students' lack of motivation, (2) poor attendance and personal problems, (3) deficiencies in instructional materials, and (4) an inability to provide quality instruction to all students. Competencies needed included: (1) knowledge of the student's physical, educational and behavioral characteristics, (2) awareness of appropriate teaching techniques, (3) guidance resources, (4) instructional materials and laboratory experiences, and (5) practical experiences.

A competency based vocational teacher education program was developed in Florida by Andreyka et al. (1976). Jury members evaluated competencies in ten major areas. The areas were: (1) program planning, (2) instructional planning and teaching methods, (3) evaluation, (4) management, (5) guidance, (6) school-community relations, (7) student organizations, (8) professional role, and (9) unique competencies. The study suggested that grouping of competencies for use in a preservice or inservice program can be accomplished based on the unique needs of participants in the objectives of the particular program.

Other Techniques

Gold (n.d.) has been developing techniques to train the trainable mentally retarded to do vocational skills. In his film, Try Another Way (Gold, 1975), he teaches the trainable mentally retarded to assemble bicycle brakes. He has also developed a series of seven training films on his own task analysis system for teaching the trainable mentally retarded. Gold writes

extensively about using task analysis in educating the trainable mentally retarded. Many publications on training, vocational rehabilitation, teacher preparation, and vocational skills development for the trainable mentally retarded have been written by Gold and a review of his work would be valuable in preparing a least restrictive educational program for handicapped students.

Work Experience

Hagestuen and others from the Minnesota Instructional Materials Center (1977) developed a teacher-coordinator handbook on vocational education work experience programs for handicapped students. The work experience program was to provide handicapped students with the skills for entry level employment upon completion of secondary level programs or at the age of 21. In order to accomplish this goal, the responsibilities of the coordinator, employer, student, and school were delineated. Problems and suggestions for work experience programming were addressed. Hagestuen and his associates considered work experience as prevocational in nature and related to the general employability and life survival skills of the handicapped student.

Projects

Project SERVE, Special Education Rehabilitation and Vocational Education (Wrobel, 1972), in Minnesota is an example of a successful ongoing project to serve handicapped and disadvantaged students. This school setting provides many of the needs of a least restrictive alternative education for handicapped students. The Vocational Counseling Unit and the Vocational Evaluation Program work together to provide coordination of services, career exploration, prevocational orientation, vocational evaluation, and vocational counseling. The special needs students are integrated into the regular #916 Vo-Tech Serve Center programs comprised of 55 occupational areas. Students are provided with supplemental and remedial instruction and personal adjustment programs. A postsecondary program provides an opportunity for a high school equivalence examination. Job seeking and survival skills, independent living skills, placement, and follow-up services are provided.

A project on program evaluation and planning, Project PEP (Tindall, 1977), identified the vocational needs of handicapped students in Wisconsin's secondary schools and the need for secondary-postsecondary articulation. The roles of vocational administrators, employers, vocational teachers, agencies, and community citizens were identified in the articulation process. CORE groups from each of Wisconsin's 16 vocational, technical, and adult education districts participated in a dissemination and planning workshop to expand and improve vocational services to handicapped students. As part of this study, Franken and Tindall (1977) conducted a survey of over 3,000 secondary students ages 14-21 to determine their vocational needs for the 1977-1982 period. Vocational training desires, supportive service needs, and learning modes were identified. Students were found to be multiply disabled with dysfunctions in the cognitive, psychomotor, and affective areas. Twelve percent of the handicapped students were thought by their special education teachers to be able to participate in postsecondary

vocational education in a regular classroom without extra help. Twenty-four percent were believed to be able to be in a regular classroom with some special considerations and 29 percent could attend postsecondary vocational education courses as members of a special class.

Barriers

The Project PEP study (Kumar and Tindall, 1977), also identified seven major barriers to enrollment in and completion of vocational programs in Wisconsin's 16 Vocational, Technical, and Adult Education Districts. These barriers were the following:

1. Attitudinal and emotional
2. Accessibility
3. Employment
4. Legal
5. Organized group
6. Professional preparation
7. Resource

Recommendations were made for their removal.

Phillips (1977) contended that barriers between handicapped individuals and their success can be grouped in three general areas: (1) barriers within handicapped persons, their families, and other advocates, (2) barriers within the helping system, and (3) barriers within society.

A policy development guide for vocational education of handicapped students was developed by Davis and Ward (1978) to aid administrators and others working with vocational programs. The guide will help administrators and state and local education agencies develop clear written policies for the establishment of vocational programs for handicapped students.

Employment for pay or nonpay is the goal of the majority of the handicapped students in vocational education. Although research has been reported in this area, much remains to be done. Recent legislation calling for affirmative action by employers doing business with the United States Government, such as Section 503 of the Rehabilitation Act of 1973, has helped. Organizations such as the President's Committee on Employment of the Handicapped (PCEH) have also been effective. This committee held a national forum entitled Pathways to Employment in 1976. The 200 delegates to this national forum offered recommendations to the PCEH concerning the employment of handicapped persons. The barriers to employment were identified, and suggestions were made for their removal. Recommendations also were made for legislation, administration, education, and the handicapped public.

Anderson (1976) recognized a number of barriers to employment for persons with minimal brain dysfunctions. These were rigid academic requirements, inflexible apprenticeship tests, inappropriate application procedures, restrictive union requirements, and inflexible working conditions.

Employment

Warren (1976) contends that the poor rate of success is related to improper methods, inadequate assistance and cooperation in education, insufficient effort on the part of the vocational educator, or an inappropriate base of operations.

Finally a report to the Congress was made by the Comptroller General of the United States (1976) on Training Educators for the Handicapped: A Need to Redirect Federal Programs. The need for more assistance to teachers of handicapped students was stressed. Recommendations were made to the Secretary of Health, Education and Welfare to direct the U.S. Office of Education to:

1. Provide a major emphasis on programs for training the nation's regular classroom teachers to deal effectively with the handicapped, in cooperation with state and local education agencies and institutions of higher learning

2. Discourage the use of BEH funds for stipends for full-time students, except where such stipends are deemed essential and other sources of student assistance are not available

3. Emphasize the need for applying individualized instruction techniques to the handicapped by supporting projects (such as those for preparing and using paraprofessionals) designed to extend the regular classroom teacher's ability to reach individual students

Sale (1977) believes that handicapped individuals have entered a new era. He states that there is such a thing as a right to work, to freely choose one's work, and to compete fairly for the work one is able to do. He concludes that it is the law that the handicapped people of our country have a right to be able to do work they are fitted to do.

DEVELOPING LEAST RESTRICTIVE VOCATIONAL SERVICES FOR HANDICAPPED STUDENTS

This section will describe some of the authors' experiences in delivering vocational services to teachers of handicapped students. The objective of the delivery system is to provide the least restrictive alternatives to handicapped students in vocational education. Three areas of input are provided to help the classroom teachers and administrators in:

1. Preservice and inservice training
2. Developing a prescription foundation
3. Preparing teachers to work with handicapped students

Preservice and Inservice Training

Preservice and inservice training needs of vocational teachers are similar at this time. Changes in the daily instructional techniques are necessary. Appropriate revisions of existing courses are sometimes sufficient and at other times additional courses may be necessary.

Developing a Prescription Foundation

The first step in developing the least restrictive alternative is to develop an educational prescription for the handicapped student. A prescription is an educational plan to help a handicapped student to function based upon his or her capabilities. In order to develop an appropriate prescription, the teacher must consider a broad range of problems affecting the learning of the handicapped student.

The information needed to make a good prescription is divided into two basic categories: (1) those things which need to be known before the class starts or early in the class, and (2) those things which need to be considered after the class ends. The following profiles may yield important information on the student's background:

1. Academic Profile for reading ability, math skills, and learning modes
2. Independent Living Profile for ability to get along with peers, money management ability, safety and health situations, transportation situation, and independent living
3. Vocational Profile for job skills, work experience, interests, and aptitudes

Vocational teachers must also be looking ahead with the student to the post-class environment. What employment skills will be needed? Will the student need a special job or a redesigned job? In follow-up plans, will job supervision, supportive services or advanced training be required? Is the student headed toward a nonemployment status? If nonemployment is the case, what should be the next step? Should it be more education or some supportive service?

When some or all of the above information is considered, an individual prescription can be developed. As an educational plan is prescribed for the student, the help which the student needs outside the vocational classroom must be considered. Prevocational, supportive, and academic services may be necessary to supplement the vocational education plan. Teachers should ask for these services if they feel such services are needed. The prescription should include the tasks which are to be learned and the method for teaching the tasks or competencies. The prescription should include course modification plans. Although the prescription may be readily made, the course

modification may require time and effort. Prescriptions calling for individualized instruction, materials development and physical modification in the classroom may not be completed during the current semester or school year. This does not mean that handicapped students must remain outside the regular classroom until the modifications are completed. Handicapped students are usually able to succeed in the regular classroom with modifications which are made before or during the early stages of the class. The process of building vocational education for the handicapped should lead to competitive employment, independence, and finally to the self-esteem which the handicapped justly deserve.

As previously stated, preparing the individual student education plan should involve consideration of the key elements in curriculum planning. The following list of considerations is provided to help teachers modify curriculum to meet student needs.

I. Administrative Policy

II. Student Assessment and Evaluation
   1) needs assessment
   2) testing of the student for mastery of course materials; contents, procedures
   3) testing and certificates; types, criteria

III. Occupation Information
   1) job goals; types, duties
   2) skills needed to be hired
   3) supervision available; type, extent
   4) potential stress factors
   5) physical demands
   6) transportation factors

IV. Course Content
   1) quantity
   2) areas covered
   3) time constraints
   4) reading level
   5) math level (when applicable)

V. Teaching Procedures
   1) for use with the entire class
   2) for use with the handicapped student on an individual basis

VI. Identification, Selection, and Sequencing of Concepts and Skills to be Taught
   1) order of presentation
   2) rate of presentation

VII. Instructional Resources
   1) textbook, manual, or workbook
   2) teaching materials and aids for teacher use
   3) learning materials and aids for student use

VIII. Supportive Services
   1) in-house
   2) outside agencies
   3) coordination mechanisms for these services

IX. Environmental Modifications
   1) buildings, laboratory, equipment, materials, classrooms

X. Emotional Climate of the Classroom
   1) feelings of nonhandicapped students
   2) feelings of handicapped students
   3) feelings of teacher

XI. Employer Contact and Job Placement

Preparing Teachers to Work With Handicapped Students

The inservice or preservice process consists of four parts:

1. Awareness: the experience of how important it can be to perceive the details of interpersonal interaction and respond appropriately

2. Reassurance: soliciting input from the class concerning their successful experiences with handicapped learners

3. Problem Definition: identifying the learning characteristics often associated with the handicapped student, and examining the teaching process for necessary modifications

4. Problem Resolution: presenting strategies to solve the problems

Vocational teachers need a variety of resources and materials to help in the development of the least restrictive alternatives for their handicapped students. A method of providing materials has been developed by the staff at the Wisconsin Vocational Studies Center. Center staff conduct a continual search for materials on the vocational education of handicapped students. A bibliography of these materials is developed periodically and distributed to teachers within the state. Vocational teachers can then borrow the materials by mail through a free loan system. There are currently about 3500 items in the collection.

This type of service provides teachers with access to the latest materials and also provides the staff who collect and distribute the materials with an indication of teachers' needs. The staff then uses this information for planning and developing materials.

RECOMMENDATIONS

Vocational educators are in the forefront in providing the least restrictive alternative for handicapped students. Help from many areas outside the vocational classroom is needed to increase the effectiveness of daily instruction and a delivery system which will provide vocational teachers with the existing knowledge on the vocational education of handicapped students. Recommendations for providing and improving the delivery system follow.

Planning

State education agency decision makers, in cooperation with local education agency and university decision makers, should determine if they have made a philosophical commitment to allocating the resources needed to insure that handicapped students are successfully educated in the least restrictive alternative possible. The best educational strategies, methods, and materials available will prove useless unless decision makers value them enough to utilize them (Gold, 1973; Klein, 1978).

Before major changes are made, the responsibilities for the processes involved in educating handicapped students, the measurement of success, the organizational revision for effective professional cooperation, and the specific student problems must be determined. It is strongly urged that all who are expected to carry out the processes involved in educating handicapped students have the opportunity to contribute to the planning process (Kaufman et al., 1975; Gugerty, 1978).

In attempting to institute least restrictive alternatives for handicapped students in any vocational education program, interagency cooperation must be developed between vocational education, special education, and vocational rehabilitation. This cooperation should be formalized by specific planning sessions and written service delivery agreements to avoid service gaps, duplication of effort, inefficiency, and the likelihood that many people who are in need of and able to benefit from such services would "fall between the cracks" (Wrobel, 1972; Dean, 1978).

It is recommended that schools and other local human service agencies facilitate interagency and interprofessional communication by jointly developing data collection forms which use as many common terms and labels as possible.

It is recommended that state-level decision makers increase the adult and continuing vocational education programs which serve adult handicapped people who are employed, especially those who might be underemployed.

It is recommended that state education agency decision makers responsible for the establishment and enforcement of instructional certification requirements for vocational educators examine alternatives to the "add on" approach to the

certification of new teachers to work with handicapped students. The "add on" approach can easily imply that handicapped people are really different from everyone else, and impossible to instruct without intensive specialized training. A suggested alternative to adding more required courses would be to incorporate instruction in needed competencies into existing courses required for certification (Sankovsky, 1977). Teacher-trainees learning to develop course objectives, lesson plans, and teaching materials should be focusing their attention on problems likely to arise from the entire spectrum of students who enroll in their courses.

It is recommended that at least one staff member be assigned full time to coordinate services to handicapped students at the local education agency and monitor the effectiveness of the educational alternatives offered. Some handicapped people, particularly many retarded people, will achieve much more in all aspects of their lives if they have an advocate-mentor to help them through the difficulties and crises which are a part of daily life (Chavan, 1976).

It is recommended that secondary and postsecondary institutions develop a cooperative plan of vocational training which allows handicapped students to explore vocational options and receive basic vocational and prevocational skill training at the secondary level. They then may enter a postsecondary institution to receive additional skill training which is neither too advanced nor a duplication of the secondary-level training.

It is recommended that universities increase their research and training efforts on the vocational and prevocational education needs of handicapped adults, in addition to handicapped children. It cannot be assumed that what works for handicapped youngsters is equally applicable to handicapped adults. It is also recommended that the U.S. Office of Education, when issuing RFPs for contracts and grants, provide financial incentives which foster an increased emphasis on the vocational education and related problems of handicapped adults.

It is recommended that federal and state legislatures consider the appropriation of funds to help alleviate critical problems of the educational system which serve as barriers to educating handicapped people. Some of these critical problems are the inservice training of teachers and administrators, hiring of paraprofessionals, and dissemination of appropriate curriculum materials.

It is recommended that handicapped people, their parents, and other advocates ask for services and explore their rights on a local basis.

It is recommended that local education agencies adjust class size as needed when placing handicapped students into the regular classroom, because the development and implementation of modifications in vocational programs for handicapped persons may require extensive teacher time not only for preparation but also for implementation.

Staff Development

The development of a range of alternatives in vocational education programming will require a greater emphasis on the use of individualized education programs and specific teaching techniques. It is recommended that teacher trainers, both preservice and inservice, stress:

1. The principle that learning is often unrelated to the quality of performance after learning has occurred. In other words, one cannot assume that a slow learner, for instance, will be a poor performer. He or she might perform quite well once learning has occurred.

2. The effective use of vocational assessment systems or the reports resulting from assessment, especially in situations where the assessment process did not distinguish between a person's learning rate or style and the quality of that person's performance once he or she has learned the task under consideration.

3. The difference between presentation of material to students in an educational setting and the establishment and implementation of systematic training sequences. Not all handicapped people are skilled at self-instruction. Merely presenting material in an unsystematic fashion on the assumption that "learners will get it" on their own can do a great disservice to students in the class.

It is recommended that state and local education agencies explore new methods of training their current vocational teachers to instruct handicapped students. It is also recommended that paraprofessionals and regular vocational teachers receive inservice training in working as teams to teach handicapped students (Dean, 1977). Appropriate inservice training should also be provided to other staff who will be expected to play important administrative and supportive roles in a mainstream setting. The current training received by administrators, guidance counselors, and psychologists, to mention but three possible professional support groups, frequently does not prepare them to work with handicapped students directly or to serve in a consulting or support capacity to regular educators who are or will be working directly with handicapped students (Keogh and Levitt, 1976).

It is recommended that the following procedures be used in designing inservice training: (1) actively involve participants, (2) build on their present levels of skill and knowledge, (3) individualize experiences to meet the needs of participants, (4) provide on-going learning experiences, and (5) implement practical rather than theoretical experiences. Provision should also be made for the appropriate orientation and training of new staff as they join the organization (Tindall and Gugerty, 1978).

University teacher educators of special education, vocational education, and vocational rehabilitation should instruct their students in skills and attitudes which facilitate the interprofessional cooperation and joint responsibility

they are likely to need once they are employed. This preparation should require extensive academic interaction as exemplified in team teaching by university staff, creative and shared placements in practicum settings, exposure to a utilization of professional literature from all three areas, and an emphasis on problem solving (Weisenstein, 1977).

Curriculum

It is recommended that vocational educators adhere to the concept of teaching individual learners.

It is recommended that local education agencies allow time for and insist on the preparation of daily lesson plans. Teachers who expect to handle several students of different skill levels and who require different instructional strategies must plan carefully so that the students will receive systematic instruction suitable to their needs.

It is recommended that educational institutions adopt a competency-based approach to instruction coupled with an open-entry, open-exit enrollment policy. In addition, the curricula should be developed in cooperation with the needs of local employers so that students who do not or cannot master the competencies required for proficiency in a broad vocational or technical area can focus on competencies which would make them employable.

Instructional Materials

It is recommended that a regional curriculum network develop, collect, and disseminate instructional materials designed to help vocational educators serve handicapped students. Such a network should not assume a passive role of waiting for interested educators to discover and utilize available resources. Rather, the network should:

1. Actively recruit users by means of frequent fliers listing available materials

2. Increase the awareness of potential users by displaying samples from their collections at conventions of likely user groups, such as state vocational associations, state special education associations, state rehabilitation associations

3. Provide consultation services upon request in order to translate relevant research results into usable forms for practitioners

4. Install a toll-free phone-in system so that users can discuss their problems with staff and receive relevant material on a free loan basis by return mail

5. Compile and distribute bibliographies of holdings to individual users and relevant human service and educational organizations

It is recommended that state education agencies devise and implement research utilization strategies which include translating significant research results on least restrictive alternatives into daily practice on the local level. Jaques and Bolton (1975) and Hamilton and Muthard (1975) present issues in, and models for, an aggressive approach to research utilization.

Local vocational training programs which have developed effective teaching materials and instructional techniques for use in programs designed to provide a variety of least restrictive alternatives for students having identified handicaps should make these materials and techniques available to other vocational training programs on at least a statewide level. This could be done on a cost recovery basis and coordinated by a state level vocational agency.

CONCLUSIONS

Vocational educators have progressed in the development of vocational programs to serve handicapped students. Research and development activities have occurred in all areas of the nation. In general, the solution is a return to teaching and meeting individual needs, whether a handicapped or nonhandicapped student is involved. The purpose of vocational education is to train people for paid or unpaid employment. Therefore, one of the criteria for evaluating vocational programs for handicapped people should be job placement of the students. Handicapped people, their parents, and others are evaluating vocational programs on this basis.

Improvement of vocational education for handicapped people is primarily the task of the vocational teachers who prepare daily instruction. However, vocational administrators, coordinators, academic and special educators, universities, state education agencies, human service agencies, employers, and others also have a part in the process. No one group can provide all of the services needed.

Barriers to vocational education have been identified in the delivery system. The three broad groups suggested by Phillips (1977) are: (1) barriers within handicapped persons, their families, and other advocates, (2) barriers in the helping system, and (3) barriers within society. Successful strategies for overcoming these barriers are being developed by vocational educators. Educators have moved from an awareness state, in which the major activities were the identification of needs, characteristics, and abilities of handicapped persons, to a more active stage. In this stage, the means of removing the barriers are being researched, new methods and techniques are being tried and evaluated, and an increasing concern about employment is evident.

The most essential need is the revision of the professional development services provided by universities and state education agencies. The term "mainstreaming" is giving way to the concept of "least restrictive alternative."

Inservice training for existing teachers remains critical. Although appropriate methods and techniques have been researched and have been found to be

successful, the application of the knowledge to the general vocational public is lacking. There are not enough appropriately trained staff at the state education agency or university levels to meet the inservice needs of vocational teachers. The knowledge of how to teach handicapped students and what services to provide are available. Each state or area needs to develop an appropriate delivery system to provide for the inservice needs of existing teachers.

Some materials have been developed in nearly every disability and vocational area. In order for a handicapped student to be given the least restrictive alternative, these existing materials must be shared among vocational educators and new materials developed. Not all materials need to be modified. Teachers need to have the competencies to adopt, modify, or develop the appropriate materials as needed.

Increasing attention is being given to providing employment for handicapped persons. Cooperation of employers and vocational educators is apparent. This has been brought about partially by new legislation pertaining to the rights of handicapped persons to employment. Employment increases have been also brought about as a result of more handicapped people learning an employable skill and then seeking employment.

Many vocational educators and others have been extremely active in their efforts to provide vocational education to handicapped students. This paper includes only a small portion of the research materials and program developments available to vocational educators charged with the development of the least restrictive alternative vocational education program for handicapped students.

Many researchers have proceeded under the concept of the least restrictive alternative without using the terminology. This is not to say that all vocational educators have provided a least restrictive alternative. However, many facets of a least restrictive alternative vocational program for handicapped students have been developed. Even though much research and development work remains undone, vocational educators do have a rich data bank of existing information to draw upon as they develop the least restrictive vocational education programs for their handicapped students. The successful development of the least restrictive alternative vocational programs for handicapped students will depend upon the ability of the vocational teacher to utilize the existing research and development results.

REFERENCES

Albright, Len, and Clark, Gary M. Preparing Vocational and Special Education Personnel to work With Special Needs Students: A Teacher Education Resource Guide. Urbana-Champaign, IL: University of Illinois, 1976.

Albright, Len; Nichols, Charles; and Pinchak, James. Identification of Professional Competencies Necessary for Teachers of Disadvantaged and Handicapped Youth. Kent, OH: Kent State University, 1975.

Altfest, Myra. Vocational Education for Students With Special Needs: A Teacher's Handbook. Fort Collins, CO: Colorado State University, 1975.

Altfest, Myra, and Hartley, Nancy. Vocational Education for Students With Special Needs: An Administrator's Handbook. Fort Collins, CO: Colorado State University, 1975.

Anderson, Lauriel E. Employment Barriers for the Learning Disabled Adult, Vocational Kit: Steps in Vocational Readiness for Adolescents and Adults With the Hidden Handicap. Los Angeles, CA: California Association for Neurologically Handicapped Children, 1976.

Andreyka, Robert E.; Blank, William E.; and Clark, Clayton. Professional Competencies and Assessment Criteria for Administrators and Teachers of Vocational Education Programs for the Handicapped in Florida. Tallahassee, FL: Florida State University, 1976.

Birch, Hack W. "The Myth of Individualization, or Beyond Lip Service in Colleges of Education." In Handicapped Youth and the Mainstream Educator Vol. IV of Leadership Series in Special Education, edited by R. A. Johnson, R. F. Weatherman, and A. M. Rehmann. Minneapolis, MN: University of Minnesota, A. V. Library Service, 1975.

Blanc, Doreen V. Job and Social Skills: Vocational Strategies for Special Needs Students. Boston, MA: Boston State College, 1976.

Blanc, Doreen V. Training Manual: Driver Education. Vocational Strategies for Special Needs Students. Boston, MA: Boston State College, 1976.

Blanc, Doreen V. Training Manual: Middle Schools, Vocational Strategies for Special Needs Students. Boston, MA: Boston State College, 1976.

Blanc, Doreen V. Training Manual: Paraprofessionals. Vocational Strategies for Special Needs Students. Boston, MA: Boston State College, 1976.

Blanc, Doreen V. Training Manual: Vocational Skills. Vocational Strategies for Special Needs Students. Boston, MA: Boston State College, 1976.

Braun, Kurt; Albright, Len; and Evans, Rupert. Improving Education and Employment Opportunities for the Handicapped: Expanding the Commitment of Vocational and Special Education. Urbana-Champaign, IL: University of Illinois, 1977.

Brolin, Donn E. Vocational Preparation of Retarded Citizens. Columbus, OH: Charles E. Merrill Publishing Company, 1976.

Brolin, Donn E. "Career Development: A National Priority." Education and Training of the Mentally Retarded 12 (1977): 154-156.

Burgdorf, Robert Lee, Jr. "The Doctrine of the Least Restrictive Alternative: Handicapped Youth and the Mainstream Educator." Proceedings of the Fourth Annual Invitational Special Education Leadership Conference. Minneapolis, MN: University of Minnesota, 1975: 143-155.

Cegelka, Patricia T. "Exemplary Projects and Programs for the Career Development of Retarded Individuals." Education and Training of the Mentally Retarded 12 (1977): 161-164.

Chaffin, Jerry D. "Will the Real 'Mainstreaming' Program Please Stand Up! (or--Should Dunn Have Done It?)." Focus on Exceptional Children 6 (1974): 1-18.

Chavan, A. Advocacy and Monitoring Services for the Developmentally Disabled. Eugene, OR: Rehabilitation Research and Training Center in Mental Retardation, 1976.

Chavan, A. Advocacy: An Annotated Bibliography. Eugene, OR: Rehabilitation Research and Training Center in Mental Retardation, 1977.

Chisman, Arlington, and Novak, Kathy. Planning Vocational Programs for the Disadvantaged and Handicapped. Blacksburg, VA: Virginia Polytechnic Institute and State University, 1977.

Clark, Gary M. "Mainstreaming For the Secondary Educable Mentally Retarded: Is It Defensible?" Focus on Exceptional Children 7 (1975): 1-5.

Comptroller General of the United States. Training Educators for the Handicapped: A Need to Redirect Federal Programs. Washington, DC: U.S. Department of Health, Education and Welvare, 1976.

Coombe, Edmund and others. "Vocational and Career Education for the Handicapped: Training the Classroom Teacher." Paper presented at The Council for Exceptional Children Convention, Atlanta, GA, 1977.

Council for Exceptional Children. Full Educational Opportunities for Handicapped Individuals. Vol. 1; Awareness Papers. The White House Conference on Handicapped Individuals, Washington, DC, 1977.

The Curriculum Catalogue. Northwestern Region Curriculum Management Center. Olympia, Washington. Published periodically.

D'Alonzo, Bruno J. "Trends and Issues in Career Education for the Mentally Retarded." Education and Training for the Mentally Retarded 12 (1977): 156-158.

Dahl, Peter R.; Appleby, Judith A.; and Lipe, Dewey. Mainstreaming Guidebook for Vocational Educators. Salt Lake City, UT: Olympus Publishing Company, 1978.

Davis, Sharon, and Ward, Michael. Vocational Education of Handicapped Students: A Guide for Policy Development. Reston, VA: The Council for Exceptional Children, 1978.

Dean, D. ed. "Vocational Education - An End To Dependency." Common Sense from a Closer Look (Summer 1978): 1-11.

Dean, Marshall A. The Paraprofessional in Vocational Education Programs for Disadvantaged and Handicapped Students. Hope Hull, AL: Link Educational Laboratories, 1977.

Dillman, Caroline M., and Maloney, Patricia. Mainstreaming the Handicapped in Vocational Education Serving the Visually Handicapped. Palo Alto, CA: American Institutes for Research in the Behavioral Sciences, 1977.

Dunn, L. M. "Special Education for the Mildly Retarded - Is Much of It Justifiable?" Exceptional Children 35 (1968): 5-22.

"Education for All Handicapped Children Act. (P.L. 94-142)." Federal Register (1977): 42497.

Faulkner, T. L. Handbook on Implementing Vocational Education Special Needs Program. Montgomery, AL: Alabama State Department of Education, 1975.

Federal Register. May 4, 1977.

Feichtner, Sheila H., and O'Brien, Thomas W. A Position Paper on Mainstreaming Special Needs Students Into Regular Vocational Classrooms: Recommendation to the State Advisory Council for the Bureau of Vocational Education. Pittsburgh, PA: University of Pittsburgh, 1976.

Franken, Marion E., and Tindall, Lloyd W. Identifying Handicapped Students and Their Vocational Needs for 1977-1978. Madison, WI: University of Wisconsin-Madison, 1977.

Gold, Marc W. Try Another Way. Urbana-Champaign, IL: University of Illinois, n.d.

Gold, Marc W. Try Another Way. (Film Training Series) Urbana-Champaign, IL: University of Illinois, 1975. Produced by Film Production Inc., 128 36th St., Indianapolis, IN 46205.

Gold, Marc W. "Research on the Vocational Habilitation of the Retarded: The Present, the Future." In International Review of Research in Mental Retardation, edited by N. R. Ellis. New York: Academic Press, 1973.

Grossman, H. T. Manual on Terminology and Classification in Mental Retardation. Washington, DC: American Association on Mental Deficiency, 1973.

Grubb, Francine. Beauty Culture: A Teacher's Guide to an Employment Orientation Course for Special Needs Students. New Brunswick, NJ: Rutgers State University, 1976.

Grubb, Francine. Basic Business: A Teacher's Guide to an Employment Orientation Course for Special Needs Students. New Brunswick, NJ: Rutgers State University, 1976.

Gugerty, J. J. "Discovering What Works Best in Educating Handicapped Students." American Vocational Journal 53 (1978): 34-36, 41.

Hagestuen, Lyndon and others. Vocational Education Work Experience Program for Handicapped Students: Teacher-Coordinator Handbook. White Bear Lake, MN: Minnesota Instructional Materials Center, 1977.

Hamilton, Laurie S., and Muthard, John E. Research Utilization Specialists in Vocational Rehabilitation. Gainesville, FL: Rehabilitation Research Institute, University of Florida, 1975.

Horn, Fern M., and Barsness, Anita O. Instructional Materials for Use With Educable Mentally Retarded Students Enrolled in Home Economics Classes. Stevens Point, WI: University of Wisconsin-Stevens Point, 1975.

Hughes, James E. Mainstreaming the Handicapped in Preparatory Occupational Education Programs in North Carolina. Chapel Hill, NC: System Sciences, Inc., 1978.

Hull, Marc E. Vocational Education for the Handicapped: A Review. Columbus, OH: ERIC Clearinghouse on Career Education, The Ohio State University, 1977.

Hull, Marc E., and Halloran, William. Professional Development Program for Vocational Educators of Handicapped Students. Montpelier, VT: Vermont State Department of Education, 1974.

Hull, Marc E. and others. Procedures for Teaching Vocational Concepts to Special Needs Students. College Station, TX: Texas A and M University, 1976.

Humphreys, Harvey. Bicycle Repair Course of Instruction. Philadelphia, PA: Pennsylvania School for the Deaf, 1975.

Jaques, Marceline E., and Bolton, Brian, eds. "Special Issue on Research Utilization in Rehabilitation." Rehabilitation Counseling Bulletin 19 (December 1975): 354-446.

Johnson, Gordon F., and Reilly, Rob. Interpretive Study: Mainstreaming Vocational Education for the Handicapped in California Secondary Schools. Final Report. Los Angeles, CA: California State Department of Education, 1976.

Johnson, Richard A.; Weatherman, Richard F.; and Rehmann, Arnold. Handicapped Youth and the Mainstream Educator...Some Perspectives: Implications for Special Education Leadership Personnel. Minneapolis, MN: University of Minnesota, 1975.

Kaufman, M. J.; Gottlieb, J.; Agard, J. A.; and Kukic, M. B. "Mainstreaming Toward an Explication of the Construct." Focus on Exceptional Children 7 (1975): 3-11.

Kelley, Catherine H. The Development of Individualized Supportive Services for Physically and Sensorially Limited Adults at a Post-secondary Area Vocational School. Waco, TX: McLennan Community College, 1977.

Kent, Carol N. "Mainstreaming in the Shop Class." Industrial Education 66 (1977): 24-26.

Keogh, B. "What Research Tells Us About Mainstreaming." In Mainstreaming: Controversy and Consensus, edited by P. A. O'Donnel and R. H. Bradfield. San Rafael, CA: Academic Therapy Publications, 1976.

Keogh, B., and Levitt, M. C. "Special Education in the Mainstream: A Confrontation of Limitations." Focus on Exceptional Children 8 (1976): 1-11.

Kessman, William A. Automobile Maintenance. Reading and Language Activities. New Brunswick, NJ: Rutgers State University, 1976.

Kirk, S. "Research in Education." In Mental Retardation: A Review of Research, edited by H. A. Stevens and R. Heber. Chicago, IL: University of Chicago Press, 1964.

Klein, N. K. "Least Restrictive Alternative: An Educational Analysis." In Education and Training of the Mentally Retarded 131 (1978): 102-114.

Krantz, Gordon C. Competencies of Special Needs Coordinators. Minneapolis, MN: University of Minnesota, 1977.

Kumar, Vasant, and Tindall, Lloyd W. Handicapped Persons In Wisconsin's Vocational, Technical and Adult Education Districts. Madison, WI: University of Wisconsin-Madison, 1977.

Maloney, Patricia. Resources for Mainstreaming Exceptional Students in Vocational Education Programs. Palo Alto, CA: The American Institutes for Research in the Behavioral Sciences, 1978.

Maloney, Patricia, and Weisgerber, Robert. Mainstreaming the Handicapped in Vocational Education. Serving the Communication Impaired. Palo Alto, CA: American Institutes for Research in the Behavioral Sciences, 1977.

Manzitti, Edward T. and others. An Evaluation of Mainstreaming in Vocational Education Programs in the State of Michigan. East Lansing, MI: Michigan State University, 1976.

Martin, Melody J. "Learning to Type With One Hand." Journal of Business Education 49 (1974): 305.

Meers, Gary D. Development and Implementation of Program Models for Assisting Vocational Teachers in Dealing With Educationally Disadvantaged, Handicapped and Minorities. Lincoln, NE: University of Nebraska-Lincoln, 1977.

New York City Board of Education. A Comprehensive Occupational Education System. Research and Experimentation in a Career Development Center. Vol. 1. Brooklyn, NY: New York City Board of Education, 1977.

Nirje, B. "The Normalization Principle and Its Human Management Implications." Changing Patterns in Residential Services for the Mentally Retarded, edited by R. Kugel and W. Wolfensberger. Washington, DC: Government Printing Office, 1969.

Osguthorpe, Russell T.; Whitehead, Beth D.; and Bishop, Milo E. "Training and Managing Paraprofessionals as Tutors and Notetakers for Mainstreamed Deaf Students." American Annals of the Deaf 123 (1978): 563-571.

Parker, Scott L. and others. Improving Occupational Programs for the Handicapped. Washington, DC: Management Analysis Center, Inc., 1975.

Phelps, Allen L. "A Proposed System for the Identification, Assessment, and Evaluation of Special Needs Learners." Journal of Industrial Teacher Education 14 (1977): 19-35.

Phelps, Allen L., and Lutz, Ronald J. Career Exploration and Preparation for the Special Needs Learners. Boston, MA: Allyn and Bacon, Inc., 1977.

Phelps, Allen L. and others. Vocational Education for Special Needs Students: Competencies and Models for Personnel Preparation. Urbana-Champaign, IL: University of Illinois, 1976.

Phillips, Linda. Barriers and Bridges. Sacramento, CA: California Advisory Council on Vocational Education, 1977.

President's Committee on Employment of the Handicapped. Pathways to Employment. Washington, DC, 1976.

Reynolds, M. "Mainstreaming: Historical Perspectives." Mainstreaming: Controversy and Consensus, edited by P. A. O'Donnel and R. M. Bradfield. San Rafael, CA: Academic Therapy Publications, 1976.

Rocco, Patricia L. Individual Prescriptive Education: An Approach to Provide Special Need Vocational Students With Success Leading Toward Employability. Fort Collins, CO: Colorado State University, 1977.

Ross, S.L.; DeYoung, H.; and Cohen, T. S. "Confrontation: Special Education Placement and the Law." Exceptional Children 38 (1971): 5-12.

Sale, Richard T. Employment. Vol. 1. Awareness Papers, The White House Conference on Handicapped Individuals, Washington, DC, 1977.

Sankovsky, Ray. An Analysis of a Statewide Survey of Vocational Educators in Alabama Who Work With Disadvantaged and Handicapped Students. Auburn, AL: Auburn University, 1977.

Schultz, Jerelyn B.; Kohlmann, Eleanore; and Davisson, Judith. Assessment of Learning Centers as a Teaching/Learning Strategy in Mainstreamed Classes. Ames, IA: Iowa State University, 1978.

Sheppard, Alan N. Identification of Problems and Competencies Needed by Vocational and Technical Education Personnel Teaching Persons With Special Needs in Virginia. Blacksburg, VA: Virginia Polytechnic Institute and State University, 1975.

Sheppard, Alan N., and Pais, Nanette. Workshop on the Development of Educational Personnel to Meet the Employment and Job Placement Needs of Handicapped Persons. Blacksburg, VA: Virginia Polytechnic Institute and State University, 1977.

Shuey, Herbert E. "Video Tapes In the Classroom." American Annals of the Deaf 121 (1976): 370-372.

Siedor, Greg. Current Litigation Affecting Occupational Education of the Handicapped. Paper presented at the Wisconsin Association for Vocational and Adult Education, Green Bay, WI; May 7, 1976.

Smith, Claudette. Mainstreaming the Handicapped in Vocational Education: Serving the Mentally Retarded. Palo Alto, CA: American Institutes for Research in the Behavioral Sciences, 1977.

Tarrier, Randolph B. Mainstreamed Handicapped Students in Occupational Education: Exemplary Administration Practices. New York: City University of New York, 1978.

Texas State Learning Resource Center. Tips for Teachers in Programming for Learners With Problems. Austin, TX: Texas Education Agency, 1977.

Tindall, Lloyd W. Program Evaluation and Planning for the Vocational Education of Handicapped Students: Secondary, Post-Secondary Articulation. Madison, WI: University of Wisconsin-Madison, 1977.

Tindall, Lloyd W., and Gugerty, John J. Modifying Vocational Programs for the Handicapped: Progress Report 1978. Madison, WI: University of Wisconsin-Madison, 1978.

Tindall, Lloyd W.; Lambert, Roger H.; and Gugerty, John. A Bibliography of Materials for Handicapped and Special Education. Madison, WI: University of Wisconsin-Madison, 1978.

U.S. Congress. "Education for All Handicapped Children Act. (P.L. 94-142)." Federal Register (1977): 42497.

Urban, Stanley J., and Tsuji, Thomas. The Special Needs Student in Vocational Education: Selected Readings. New York: MSS Information Corporation, 1974.

Warren, Fount G. Preparing the Handicapped for Gainful Employment. West Lafayette, IN: Purdue University, Colloquium Series on Career Education for Handicapped Adolescents, 1976.

Weisenstein, Greg R. "Vocational Education's Contribution in the Career Development of Retarded Individuals." Education and Training of Mentally Retarded 12 (1977): 158-160.

Weisgerber, Robert. Mainstreaming the Handicapped in Vocational Education. Serving the Orthopedically Handicapped. Developing a Plan for Action. Developing a General Understanding. Palo Alto, CA: American Institutes for Research in the Behavioral Sciences, 1977.

Wentling, Tim L. and others. Resource Directory for Teacher Education in Vocational Special Needs. Minneapolis, MN: Minnesota Research and Development Center for Vocational Education, University of Minnesota, 1978.

West Virginia Institute of Technology. Expanding Options for Handicapped Persons Receiving Vocational Education. Montgomery, WV, 1976.

Wolfensberger, Wolf. "A Brief Overview of the Principle of Normalization." Severe Disability and Rehabilitation Counseling Training, edited by Shelton A. Grand. Albany, NY: State University of New York, 1976.

Wolfensberger, Wolf. The Principle of Normalization in Human Services. Toronto, Ontario: National Institute on Mental Retardation, 1972.

Wolfensberger, W., and Glenn, L. PASS: A Method for the Quantitative Evaluation of Human Services. 3d ed. Toronto, Ontario: National Institute on Mental Retardation, 1975.

Wrobel, Charles. Memorandum: #916 Vo-Tech "SERVE Center" Vocational Evaluation and Training for Handicapped-Disadvantaged. White Bear Lake, MN: 916 Area Vo-Tech Institute, 1972.